



TA-I Technology Inc.

Approval Specification Sheet
for TA-I

Doc. No

TAI004 Series

Issued date

2012/08/22

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LED Heat Dissipation Substrate Approval Specification Sheet for TA-I 004 Series

TA-I Technology Part Number: LHA01APTAI004 Series

Customer Approval:

Valid Date	Release Date	Version
Aug 22 , 2012	Aug 22 , 2012	TAI004 Series
Approved by	Checked by	Produced by

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1. Specification :

1.1 Substrate Dimension as shown in Table 1.

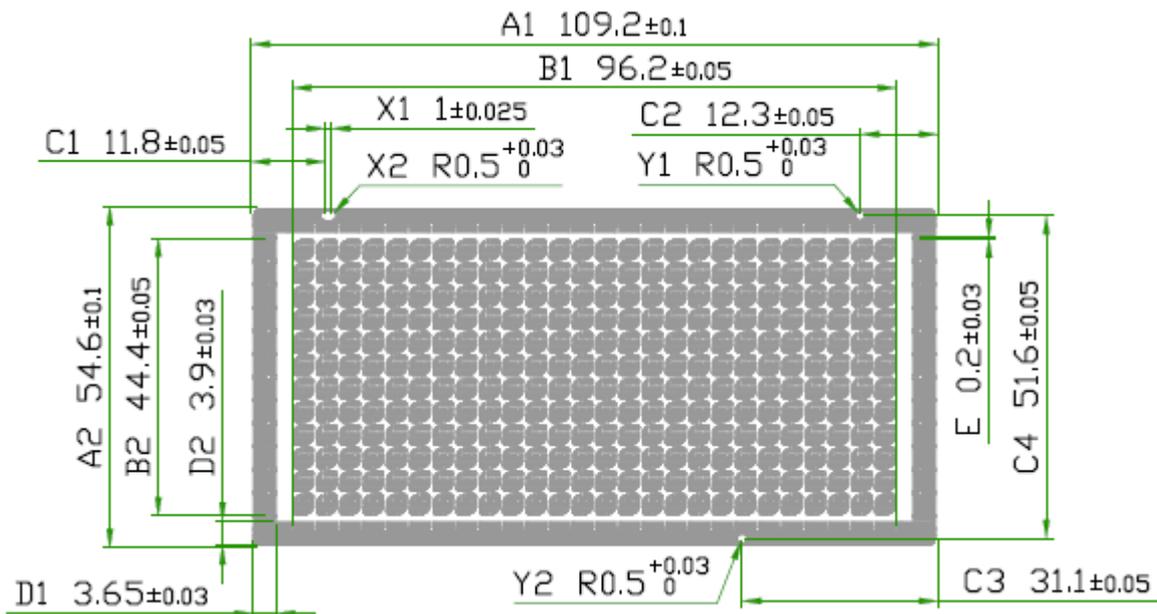
1.2 Per panel up to 312 pieces.

Table 1: The spec of Panel and Single Unit

	Item	Spec
Panel	Length	109.2±0.1
	Width	54.6±0.1
	Thickness of substrate	0.38±0.04
	The total thickness	0.53±0.025
Single Unit	Length	3.5±0.02
	Width	3.5±0.02

Unit: mm

1.3 Specification of Panel:

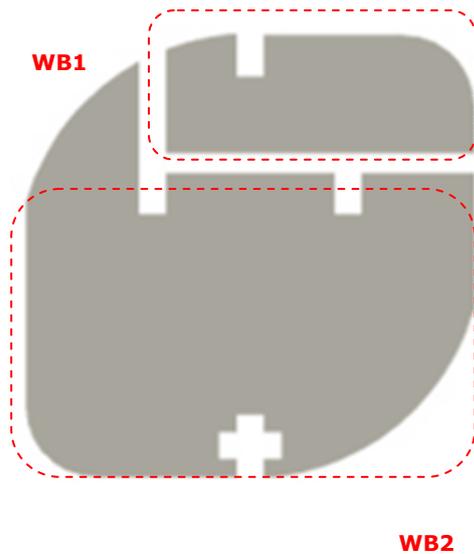




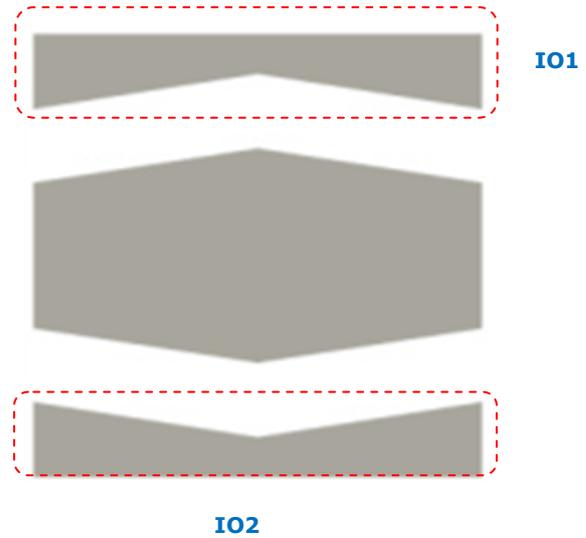
2. Electrical Continuity Test:

2.1 Test point: As shown in below diagram.

2.2 Method: Use flying probe attach separately to IO1 / IO2 of front side and WB1/WB2 of back side, result shall as shown as Table 1 and all via holes plugged. Electrodes of IO1/WB1 and IO2/WB2 shall be isolated from each other.



Front Side – Bondpad Area



Back Side – Non-Critical Area

2.3 Table of electrical function:

Measurement area	IO1-WB1	IO2-WB2	WB1-WB2	IO1-IO2
Function of electrical	○	○	×	×

○: Closed, ×: Opened



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3. Criteria of Visual Inspection:

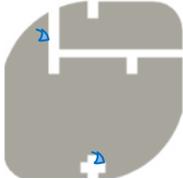
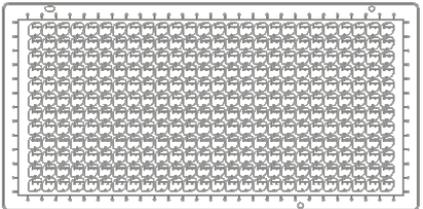
3.1 Visual inspection

3.2 Test items are shown as below table.

3.3 Tool: CCD OM 15X

3.4 Panel defective control: Accept if defective $\leq 10\%$

3.5 Definition of test areas:

No.	Item	Examine area	Specification	Schematic diagram
1	a)Depression b)Silver Point c)Protrusion d)Foreign Materials e)Contaminants f)Crack g)Peeling (Electroless & Electro Plating)	Single unit of front and back side	NG if $\geq 0.8\text{mm}$	 <p style="text-align: center;">Front Side Back Side</p>
2	Pattern Inspection	Pattern of front and back side	The finish pattern shall per original drawing (above 95%).	
3	Plating Layer / Photoresist	Gap edge of bondpad area	No metal / photoresist in indicated area.	
4	Over Plating / Partial Plating	Panel	Filling holes ratio $> 99\%$	
5	Over Plating	Tooling hole	No metal inside of the tooling hole.	



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4. Coating thickness test specification:

4.1 Using tools : Substrate thickness : Micrometer
 Cu thickness : 3 axis microscope
 Cavity thickness : Micrometer
 Final finish thickness : X-ray thickness meter

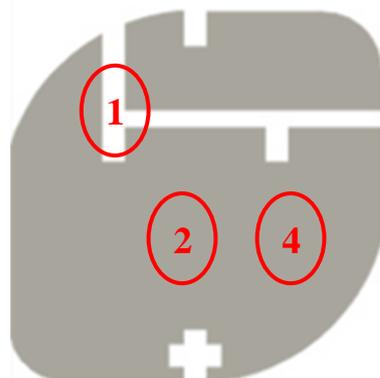
4.2 Measurement position:

Substrate thickness : Position 1
 Cu thickness : Position 2
 Cavity thickness : Position 3
 Final finish thickness : Position 4

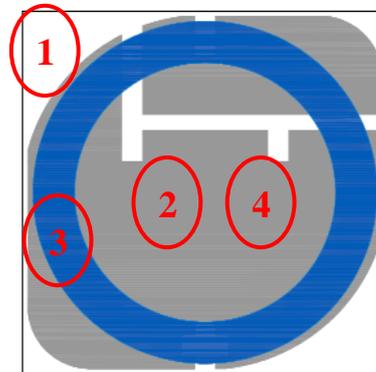
4.3 Inspect spec: (Tree times average of measurement)

Substrate thickness : 0.38 ± 0.04 mm
 Cu thickness : 65 ± 10 um
 Final finish thickness :

TAI004B : Ag:0.5 (0.4~1.2)um (electroless)
 TAI004C : Ni: 5 (2~8) um
 Pd: 0.1 (0.05~0.25) um
 Au: 0.1 (0.05~0.25) um (electroless)
 TAI004D : Ag:0.5 (0.4~1.2)um (electroless)
 TAI004E : Ni: 5 (2~10) um
 Ag: 3 (1.5~7) um (electroplate)
 TAI004F: Ni: 5 (2~8) um
 Au: 0.3 (0.2~0.8) um (electroplate)
 TAI004G: Ni: 5 (2~8) um
 Pd: 0.1 (0.05~0.25) um
 Au: 0.1 (0.05~0.25) um (electroless)
 Cavity thickness(Dry-film): 0.1 ± 0.02 mm



TAI004B、C、D、E、F



TAI004G



5. Reliability test

No.	Item	Parameter	Specification
1	Adhesion test	1. Temp. : RT 2. Tool : 3M-600 3. Time : adhesive 30 seconds 4. Angle : 180°	● The exterior must be no separate
2	Solderability	1. Temp. : 245±5°C 2. Time : 5±1sec 3. solder bath composition : (Ag/Sn/Cu=3/96.5/ 0.5%)	● Coverage > 90%
3	Reflow	1. Temp. : 280°C 2. Times : 3 cycles	● The exterior must be no separate, crack and warpage ● Maintain the electrical function.

6. Notices

(1)When inspection, packaging and handling:

Must wear gloves and masks when inspect products.

Must wear latex gloves before unpacking products

Must avoid vibration, shock and stress etc. when carry products.

(2) Storage conditions:

Store under 25°C±5°C 、 50%±10RH when sealed.

The expiration date is less than 3 months when sealed.

Store under 25°C±5°C 、 50%±10RH when unsealed.

Please store unsealed package in airtight containers and used up within 3 days.

(3)Before wire bonding :

Please clean and preheat before wire bonding.